CLAIM AMENDMENTS:

This listing of claims will replace all prior versions and listings of claims in the application:

1-20. (canceled)

21. (previously presented) A method of immunizing bovine animals comprising administering to bovine animals at least one inactivated or attenuated *Mycoplasma bovis* biotype, whereby the incidence of mastitis in the bovine animals is reduced.

22. (previously presented) The method of claim 21 comprising administering at least one inactivated *Mycoplasma bovis* biotype to a plurality of cows in a herd of cows and determining that the incidence of mastitis caused by *Mycoplasma bovis* in the herd before administering was greater than the incidence of mastitis caused by *Mycoplasma bovis* in the herd after administering.

23. (previously presented) The method of claim 22 comprising administering at least one inactivated *Mycoplasma bovis* biotype to at least about 50% of the herd.

24. (previously presented) The method of claim 21 where the inactivated or attenuated *Mycoplasma bovis* biotype is administered together with an adjuvant.

25. (previously presented) The method of claim 24 where the adjuvant is an aluminum hydroxide-oil emulsion; a mineral, vegetable, or fish oil-water emulsion; a water-oil-water emulsion; incomplete Freund's adjuvant; *E. coli* J5; dextran sulfate; iron oxide; sodium alginate; Bacto-Adjuvant; a synthetic polymer; Carbopol; a poly-amino acid; a co-polymer of amino acids; saponin; carrageenan; REGRESSIN®; N, N-dioctadecyl-N'-N'-bis(2-hydroxyethyl) propanediamine; a long chain polydispersed β(1,4) linked mannan polymer interspersed with O-acetylated groups; deproteinized cell wall extracts from a non-

pathogenic strain of *Mycobacterium*; mannite monooleate; paraffin oil; or muramyl dipeptide.

26. (previously presented) The method of claim 21 where the inactivated or attenuated *Mycoplasma bovis* biotype is administered together with a pharmaceutically acceptable excipient.

27. (previously presented) The method of claim 21 where the inactivated or attenuated *Mycoplasma bovis* biotype is administered orally, intranasally, intratracheally, intramuscularly, intramammarily, subcutaneously, intravenously, or intradermally.

28. (previously presented) The method of claim 21 where the inactivated or attenuated *Mycoplasma bovis* biotype is administered by injection, inhalation, ingestion, or infusion.

29. (currently amended) The method of claim 21 where the *Mycoplasma bovis* biotype has been inactivated.

30. (previously presented) The method of claim 29 where the *Mycoplasma bovis* biotype has been inactivated by treatment with: formalin, azide, freeze-thawing, sonication, heat, sudden pressure drop, detergent, lysozyme, phenol, proteolytic enzymes, β-propiolactone, Thimerosal, or binary ethyleneimine.

31. (previously presented) The method of claim 30 where the *Mycoplasma bovis* biotype has been inactivated by treatment with β-propiolactone.

32. (previously presented) The method of claim 21 where at least two inactivated *Mycoplasma bovis* biotypes are administered.

33. (previously presented) The method of claim 32 where the at least two inactivated *Mycoplasma bovis* biotypes are selected from the group consisting of Biotype A, Biotype B, and Biotype C.

34. (previously presented) The method of claim 32 where at least 10^8 cell equivalents of each *Mycoplasma bovis* biotype are administered.

35. (previously presented) The method of claim 32 where approximately 10^8 cell equivalents of each *Mycoplasma bovis* biotype are administered.

36. (previously presented) The method of claim 32 where at least approximately 10^5 cell equivalents of each *Mycoplasma bovis* biotype are administered.

37. (previously presented) The method of claim 32 where approximately 10^5 cell equivalents of each *Mycoplasma bovis* biotype are administered.

38. (previously presented) The method of claim 32 where the at least two inactivated *Mycoplasma bovis* biotypes are administered separately.

39. (previously presented) The method of claim 21 where at least two inactivated *Mycoplasma bovis* biotypes and an antigen derived from another pathogen are administered.

40. (previously presented) The method of claim 39 where the antigen from another pathogen is from an attenuated or inactivated virus.

41. (previously presented) The method of claim 39 where the antigen from another pathogen is selected from the group consisting of antigens from *Staphylococcus aureus,*

Pasteurella hemolytica, Pasteurella multocida, Hemophilus somnus, Bovine Respiratory Syncytial Virus, *E. coli*, and the organism causing Infectious Bovine Rhinotrachial Disease.

42. (previously presented) The method of claim 32 where the at least two inactivated *Mycoplasma bovis* biotypes are genetically different as determined by an analysis of DNA or RNA from the biotypes.

43. (previously presented) The method of claim 42 where the analysis is PCR fingerprinting, analysis of ribosomal RNA, or analysis of DNA polymorphisms.

44. (previously presented) The method of claim 43 where the analysis is by PCR fingerprinting.

45. (previously presented) The method of claim 44 where the PCR fingerprinting uses arbitrarily chosen primers.

46. (previously presented) The method of claim 44 where the PCR fingerprinting uses as primers 5' NNN NCG NCG NCA TCN GGC 3' (SEQ ID NO:1) and 5' NCG NCT TAT CNG GCC TAC 3' (SEQ ID NO:2).

47. (canceled)

48. (previously presented) The method of claim 32 where the at least two *Mycoplasma bovis* biotypes are administered in a specific ratio.

49. (previously presented) The method of claim 32 where the at least two *Mycoplasma bovis* biotypes are grown separately as pure cultures, inactivated, and combined together in equal amounts before being administered to the animal.

50. (previously presented) A method for immunizing bovine animals comprising administering to bovine animals an antigenic component from at least one inactivated or attenuated *Mycoplasma bovis* biotype, whereby the incidence of mastitis in the bovine animals is reduced.

51. (previously presented) The method of claim 50 where antigenic components from at least two *Mycoplasma bovis* biotypes are administered.

52. (previously presented) The method of claim 21 where the administering results in greater milk production, greater weight gain, or less clinical disease in the bovine animal.

53. (currently amended) A method of immunizing bovine animals comprising:
(a) testing samples from bovine animals for the presence of *Mycoplasma bovis* biotypes, thereby identifying specific *Mycoplasma bovis* biotypes in the samples;
(b) preparing a vaccine by inactivating at least 10^5 cell equivalents of at least one of the *Mycoplasma bovis* biotypes identified in step (a); and
(c) administering to the bovine animals the vaccine of step (b),
whereby the bovine animals are immunized so that the incidence of mastitis in the bovine animals is reduced.

54. (previously presented) The method of claim 53 where the sample is milk.

55. (previously presented) The method of claim 53 where step (a) comprises genetic analysis of DNA or RNA from the *Mycoplasma bovis* biotypes.

56. (previously presented) The method of claim 55 where the genetic analysis is PCR fingerprinting, analysis of ribosomal RNA, or analysis of DNA polymorphisms.

57. (previously presented) The method of claim 56 where the genetic analysis is PCR fingerprinting.

58. (new) The method of claim 21 whereby the administering does not cause unfavorable reactions.

59. (new) The method of claim 32 whereby the administering does not cause unfavorable reactions.

60. (new) The method of claim 29 whereby the at least one inactivated *Mycoplasma bovis* biotype has not been inactivated with formalin.

61. (new) The method of claim 32 whereby the at least two inactivated *Mycoplasma bovis* biotypes have not been inactivated with formalin.